G. R. S. 59] GPB—15,000—20-12-13

GENERAL AND REVENUE SECRETARIAT.

P 76E

1913.

(Q 7)

File No. 153-13

Serial Nos. 1 — 2

Papers Filed.

Month ~~April~~ 1914

SUBJECT.

Proposals for ~~finance~~ financing the Bangalore-Chickballapur Light Railway

PREVIOUS REFERENCES.	LATER REFERENCES.
	Q 7 19/1/14 & 1-2-~~14~~ 6 B Nov 14

B.R. 9/2
24-2-14

G.R.S. 11] 1913.

GENERAL AND REVENUE SECRETARIAT.

(GF)

NOTES.

File No. 153-13

FILE HEADING.

Proposals for financing the Bangalore-Chickballapur Light Railway.

From

No.	Dated	Received

Diary No.	Enclos.	Spare Copies.	Serial No.

BRIEF ABSTRACT OF LETTER.

NOTES AND ORDERS.

NOTES—First Sheet.

GPB—35,000—15 6-12

Letter No 969 d/11 8/13

From the Chairman, Bangalore-Chikballapur Light Railway Company, Bangalore, to the Comptroller, Mysore Government.

In continuation of my letter No.773 dated 1st August 1913,. I have the honor to inform you that a sum of Rs.23,104-4-1 being the balance at the credit of this Company's Savings Bank and current accounts in the Bank of Madras, Bangalore, on the 31st July 1913 as per details at foot has been transferred to the credit of the Dewan of Mysore in the Bank of Madras, Bangalore.

2. One Government of India Pro-Note of the 3½ per cent loan of 1900-1901 for Rs.5,000/- duly transferred to the Dewan of Mysore is herein enclosed and an acknowledgment of the receipt of the same is requested.

3. Our Bankers in Bombay have been requested to arrange to have the amount of Rs.1,05,000/- (about) available in Bombay, similarly transferred to the Government of Mysore at an early date.

4. To meet the convenience of our shareholders who may choose to pay their call amounts through Banks, it is necessary to maintain current accounts in the Bank of Madras, Bangalore, and the Indian Specie Bank, Bombay; but the Bank will be instructed to transfer to the Mysore Government on the 4th day of every month all the share amounts received by them during the previous month on account of this Company.

Balance of Savings Bank account.	Rs.	3,398	12 11
Balance of current account	"	19705	7 2
	Rs.	23104	4 1

VB

"COPY"

for Superintendent,
Comptroller's Office

G.7153-13. (1

Jo No 170.
29.3.13.

I shall be obliged by the Financial Secretary preparing in consultation with the Railway Secretary a note regarding the financing of the Bangalore Chikballapur Light Railway ~~line~~ now under construction.

The capital available being admittedly insufficient, it is necessary to have alternative proposals ready in case the Company fail to find all the money required. I feel that before commencing work the situation in this respect should have been made clear.

28.3.13. R.b

Mr M.N.K

Please put up all papers with a note.

29/3/13

Have we got any information or papers on the following points:-

1. Has the project estimate for the line been sanctioned? If so has a copy of it been received in our office and what is the amount of such estimate?

2. Is there any programme of expenditure of the amount of the estimate showing the number of years during which the work is expected to be in progress and the anticipated outlay in each year?

3. What is the amount of the authorised share capital of the company? What portion of it has been called up and what is the response to the call?

4. What is the total amount of share capital actually collected by the company and where is it kept? If any portion of the collected amount has been expended is there any account of the expenditure incurred.

5 What is the company's own expectation in regard to the balance of amount required

(3

for constructing and equipping the line?
Has the company formulated any proposal for finding the balance of funds for financing the project?

The file putup contains no information on any of the points noted above.

30.3.13

× Flagged A

1. Yes. Vide letter No 7878 dt 13th Dec 1909 from the First Assistant to the Hon'ble the Resident in Mysore to the Dewan of Mysore. The estimated cost of the project is Rs 13,73,278 including interest &c.

2. There is no programme of expenditure

3. Rs 12,00,000 is the authorised share capital of the Coy.
Rs 91,172-14-0 was collected up to end of June 1910 and Rs 27,247-9-7 expended leaving a balance of Rs 63,925 ×

× Flagged B

4. Total amount of share capital actually collected is not known. From the Treasury Branch it is learnt that Rs 1,49,917-14-6 was deposited by the Coy in the Govt Treasury to end of Dec/12
There is no account in this office of the amounts collected and expended by the Coy.

The company has not formulated any proposal for finding the balance of funds for financing the project

6. This office ~~sends by Registered~~ files ~~as~~ herewith print up. Required information cannot be had from ~~Kasur~~ Lyallpur,

WCC
1/4

we have no information on many of the points which it is necessary to ascertain before acting on this case. All particulars regarding the present financial position of the Company and its own expectations of its future position should be known before we can say whether the Company itself can finance the whole project or whether the financing should be taken over by the Govt. The question of how Govt should find the required funds is one that will arise for consideration after it is decided that the Company is unable to carry out the Project for which it was formed and that the project should be classed as a State line proper. If the Company is unable to find the money one other possible means of finding it is to see if the Bangalore and Kolar District Bds there whose jurisdictions the line lies are able to finance the project from any resources at their disposal. In any case this Office is not in a position

at this stage
to note on the case which may therefore
be transferred to the Railway Secrt
for consideration in the first instance,
after obtaining the necessary particulars
from the Company and also by using such
information bearing on the question
as may already be available in
the Govt Office.

4.4.13

Complete

U.O.No. ~~43~~ Rys dt 8.4.13 forwarded to the Secy for Railways for favour of necessary action as indicated above. The financial aspect of the case will be further considered and the papers submitted to Dewan Sahib after receipt of the Ry Secy's note.

5/4/13

OFFICE OF SECRETARY FOR RAILWAYS P.W.D.
Reg. No. V: 0: 26.
8 APR 1913
GOVERNMENT OF MYS

Recd: on 8/4/13

Secy Rly
8/4.

8/4.

Manager,
Please put up
a note covering case

P. T. O

Railway Secretariat. | File No. of 191 .

Serial No.

T/1316

Un-official Note No.43/Rys.,dated 8th - April 1913 from the Financial Secretary to Govern-ment on the subject of financing of the Bangalore-Chickballapur Light Railway project.

U.O.No. 26 dated 12th June 1913.

T/1316

Returned, with compliments, to the Secre-tary to Government, Financial Department.

2. The project estimate for the work has been sanctioned by the Government of India and a copy thereof is forwarded herewith.

A programme of probable expenditure on the work during the years 1912-13 and 1913-14 and a copy of letter No.1361 dated 29th April 1913 from the Chairman of the Company, which gives in-formation on the other points raised by the -- Financial Secretary, are also annexed. With re-ference to this programme, I would add that it was got out by the Executive Engineer on the basis of the sanctioned estimate. The re-alignment carried out lately under my supervision has very much reduced the quantities of work, and on going into the matter again to-day I think a lump sum

Serial No.

reduction of Rupees one lakh may be made from Rs.7,18,000.

3. On a reference from the Comptroller, Public Works and Railway Branch, the Chairman has been asked to deposit all the money raised for the Railway in the Government Treasury.

4. It may also be mentioned that a proposal for giving the Light Railway an entrance into Bangalore City Station by means of a third rail laid on the existing line between Bangalore and Yelahanka is under investigation and this will, if carried out, have the effect of greatly reducing the capital cost of the undertaking.

In fact 8 lakhs of rupees would then probably suffice for first opening.

5. With regard to the suggestion that the Bangalore or Kolar District Boards may finance the scheme in case the Company fail to do so, it may be stated that the District Board of Kolar have already recorded their opinion that the money required for the extension of the Bowringpet-Kolar Railway to Chintamani cannot be raised

GPB—1,500—3-12-12

Serial No.

raised in that District. It is therefore unlikely that they will come forward to finance the Bangalore-Chickballapur Light Railway project. As regards the Bangalore District Board, they have under consideration a scheme for the construction of a Steam Tramway between Bangalore and Kunigal. It is therefore doubtful whether they can simultaneously help the Company with regard to the Bangalore-Chickballapur Light Railway.

6. I am therefore of opinion that, if the anticipation of the Chairman of the Company that Rs.8 lakhs will be paid up by the share-holders fails to be realized, Government may have to advance any balance that may be required to push the project through to completion.

E. A. Bell

Secretary for Railways,

11th June 1913. Government of Mysore.

12/6

JP

Sub-2

Bln

13-6-1913

It is clear that neither the Kolar D.B. nor the Bangalore D.B. can help us to meet the deficiency required. The Government

Please copy this portion of the note on the proper place. It has come between the letter & its annexures. SR

4/7

GPB—1,500—3-12-12

MYSORE STATE RAILWAY.

Statement showing the grant required for the construction of the Bangalore-Chickballapur Light Railway during 1912-13 and 1913-14.

	Head of service.	Amount of sanctioned estimate.	Required for expenditure.	
			1912-13.	1913-14.
		Rs	Rs	Rs
I.	Preliminary expenses.	10,450	--	--
II.	Land. ...	11,954	--	--
III.	Formation. ...	2,10,960	1,725	1,00,000
IV.	Bridge work.	1,24,334	1,000	1,00,000
V.	Fencing. ...	21,902	--	5,000
VI.	Electric Telegraph.	1,897	--	--
VII.	Ballast and Permanent Way.	5,00,338	--	3,00,000
VIII.	Stations and Buildings.	89,902	400	50,000
IX.	Plant. ...	22,887	607	19,000
X.	Ferries.	--	--	--
XI.	Rolling stock.	1,85,063	--	1,20,000
XII.	General charges.	42,525	2,832	24,000
	Total.	12,22,212	6,594	7,18,000

Sd/- E.A.S.Bell,

Engineer-in-Chief,
Mysore State Ry.Construction

****

"Copy"

12/6/13

Under Secretary for Railways,

Government of Mysore.

Letter No.1361 dated 29th April 1913 from the Chairman, Bangalore-Chickballapur Light Railway Company, Bangalore to the Secretary to the Government of Mysore for Railways, Bangalore.

*****

I have the honour to acknowledge the receipt of your letter No.1097 dated 9/10th instant requesting detailed information regarding the financial position of the Company and how they propose to finance the project when the funds on hand are spent, and to state in reply as follows:-

1. Actual subscribed capital is Rs.9,94,150/- out of a nominal capital of Rs.12,00,000. Forty per cent of the subscribed capital or Rs.3,97,600 has been called, in response to which Rs.2,62,387 has been paid by the shareholders. This represents 66 per cent of the amount called in.

In addition to the above, a sum of Rs.32,433 has been paid by some of the shareholders in anticipation of calls.

2. Actual amount collected up to 31st March 1913 is:-

Share capital.	Rs.2,94,810-12-0
Interest earned.	12,379-14-5
Miscellaneous receipts.	1,388- 2-5
Total.	Rs.3,08,578-12-10

Actual expenditure up to 31st March 1913 is:-

Preliminary expenses.	Rs.	53,051- 2-7
Interest paid.		8,697- 3-5
Miscellaneous expenses.		2,365-15-9
Total.	Rs.	64,114- 5-9
Dead stock.		1,197-14-9
Grand Total.	Rs.	65,312- 4-6

(Note: There are claims to the extent of about Rs.7,000 payable to Canvassing Agents, Contractors, Printers etc., and sitting fees of Directors).

3. The actual unspent balance as on the 31st March 1913 is Rs.2,43,266-8-4, and the same is distributed as under:-

In

(11)

In Mysore Government Treasuries.		Rs.1,46,870 - 5 - 8
In Bank of Madras.	...	5,325 - 5 - 3
In Savings Bank Account.		3,250 -12- 2
In Government Pro Notes.		5,000 - 0 - 0
In the India Specie Bank.		82,444 - 0 - 0
Balance with Canvassars.		52 - 0 - 0
Cash on hand.	...	324 - 1 - 3
	Total.	Rs.2,43,266 - 8 - 4.

4. The Company expect that after allowing for forfeiture of shares for default in payment of calls, about 8 lakhs of share capital will be fully paid up in due course, leaving another 2 lakhs available for allotment in addition to the 2 lakhs which remains unallotted. Thus 4 lakhs will have to be raised by fresh allotments of shares, or failing that, by the issue of debentures, or as a last resort, as a loan from Government, a contingency which, the Directors hope, will not arise and which they would exert their utmost to avert.

****

"Copy"

12/6/13

Under Secretary for Railways,

Government of Mysore.

Railways

COMPTROLLER'S OFFICE.

(P.W. AND RY. BRANCH.)

ORDERS.

NOTES.

It will be seen from the file of papers herewith put up that a Sum of Rs 2, 62, 387 has been paid by the Share holders against the actual Subscribed Capital of Rs. 9,94,150/-

When the Company has collected a Sum of Rs 2,62,387 Subscribed Capital or 40 per cent of Rs 3,97,600 ~~call~~ for, there is every probability that it will collect the differe of Share holder who has pai a part of the amount will never run the risk of forfeitu what he already paid.

The Company assures us that no large defaulters are apprehended and ~~that~~ in case there should be any it will fill up their place

places very easily by getting
the people to subscribe.

The Construction of a
line of Railway from
Bangalore to Chickballapur
had been under Considera-
tion for more than 10 years.
After all, the State under-
took to Construct the line
and the work was started
in March December last. Now
the public are quite aware
of the fact that there will
be no further delay as to its
Construction and they will
pay the Share immediately,
lest they forfeit what
was already paid.

If in spite of the Coys
endeavour the required Capital
Viz Rs 12.00.000/ is not collected
in full, the Govt should
be prepared to meet the
deficiency either Substantial

COMPTROLLER'S OFFICE.

(P.W. AND RY. BRANCH.)

NOTES.

tentatively or permanently according to the circumstances that may exist. Thus

Mr Bell says in his Note 10/11.6.13 that there is a proposal under investigation that the Capital cost of the line could be reduced from £12.00.000/- to £8.00.000/- by means of a third rail laid on the existing line between Bangalore and Jalahanka. If the working agency Mr x Sir M. F. Cooy agrees to this arrangement, I am sure the Capital cost will greatly be reduced. Govt. Sanction is not necessary as the expenditure to be incurred is within the amount Sanctioned by Govt

9/11/23/6. Sanction of Govt of

India & any deviations that may
be proposed appears necessary.

23.6.13

(12

. R. S., 12]

General and Revenue Secretariat. | File No. | of 191

Serial No.

It is clear that neither the Railway Board nor the Bangalore Municipality can help to meet the difference. The promoters of the Company are however hopeful that they will collect the required capital and the Secretary to the Municipality states that there will be large savings on account of the realignment. He put in there my proposal to adopt 1.5 Cubic as mooring charges to the Company and as a line from Bangalore to Bowringpet via Yelahanka, Doddaballapur, Nandidurg & Kolar showed a loss of some significance if we can carry by this approach to Kolar it seems worthy of your help. The difference in capital of any shortage in the circumstances be met by the govt and the profits shared pro rata according to the capital put in by the Company first in addn to the interest & sinking fund charges proportionately.

Secy)

16/6/65

Mr M.N.K

Kindly discuss in a note all possible alternatives if the Company cannot raise the necessary capital. Do it to be made out from Mr Bell's note that the cost of the scheme as revised by him will be 8 lakhs? Will not such changes require fresh sanction?

Rec... 21/6/65

Comm...

NOTE—Contn. sheet.

note put up

Comptr) 3-7-6

GPE—65,000—17-6-12.

(13

Rec.
Gl. 7

COMPTROLLER'S OFFICE.

(CIVIL BRANCH.)

ORDERS.

NOTES.

The net cost of Construction as originally estimated is Rs 12,22,212. The Secy for Rys now estimates that "8 Lakhs of rupees would probably suffice for the first opening".

2. The Chairman of the Company is confident that "about 8 Lakhs of Share Capital will be fully paid up in due Course". If we can rely on this assurance the Cost of Construction as now estimated will be fully financed by the Company itself. The Construction having been undertaken the only point of importance, on this Supposition is if the money required from month to month for meeting the outlay can be found from the Share Capital collected by the Company. The response to Calls may not be made in time and the financing of the Construction can not be made to depend upon the uncertain Supply of funds to be made by the Company. If the Company can be trusted to raise the Sum of 8 Lakhs the only arrangement for

Rec.
Gl. 7

(14

COMPTROLLER'S OFFICE.

(CIVIL BRANCH.)

ORDERS.

NOTES.

Keeping the Construction work going is for Govt to advance the required funds as a loan to the Company at a fair rate of interest. As the Share Capital is collected it can be taken in repayment of the loan.

3. If the expectation of the Company can not be depended upon then there are the following alternatives
i To treat the line as a State Ry by taking over the assets and liabilities of the Company. A Sum of Rs 295,000 has been collected by it and the amount Spent is Rs 65,000. The Cash coming into the treasury will be about Rs 230,000 and a Sum of about 5½ Lakhs may have to be found for the line from the funds reserved for Ry Capital outlay. In this Case the line will have been constructed partly from Revenue and partly from borrowed funds. The position of the creditors will be that of debenture

(15

Rec.
Gl. 7

COMPTROLLER'S OFFICE.

(CIVIL BRANCH.)

ORDERS.

NOTES.

holders having only a claim to interest on the money advanced by them. If this loan is repaid immediately the transaction will be simpler and the line will have been financed from purely Govt funds.

ii If the balance of about 5½ Millions referred to under alternative (i) is raised by Govt as a loan the line will be a State line constructed entirely out of borrowed funds. The present B.C.L Ry Co will cease to exist and Govt may deal directly with the Company's Shareholders and when Govt appears as the direct borrower the response to calls for the remainder of the loan attempted to be floated by the Company may be prompt and full. The creditors can be treated as Debenture holders entitled only to the stipulated rate of interest on money advanced by them and not as Shareholders entitled to the net earnings of the Ry.

(16

COMPTROLLER'S OFFICE.

(CIVIL BRANCH.)

ORDERS.

NOTES.

But the amount is too small to be raised as a loan by Govt.

iii If there is the certain prospect of this line yielding a return of at least 4 p.c. and if there are any other lines equally promising the amount required for such lines may be found by raising a loan. Those who have now taken up shares in the B.C.L. Ry Co may be given the option of tendering for this loan or of getting back their money already paid by them. This alternative involves the risk of failure in raising the loan or of raising it at a loss. Besides if money can be found otherwise for these projects it may not be advisable to resort to borrowings.

ir If either the Bangalore or the Kolar District Boards whose jurisdiction this line passes can find the remaining amount & can take over the

(1)

COMPTROLLER'S OFFICE.

(CIVIL BRANCH.)

NOTES.

assets and liabilities of the B.C.L. Ry Company but the Secy for Rys thinks that neither of these Boards is likely to be able to raise the required amount.

4 In view of the fact that the possible alternatives are not free from their own drawbacks and what is more, of the desirability of making this first venture on the part of a Company for constructing a railway a success it seems best to give the Company a chance for raising the balance & make up 8 lakhs about which it feels confident and allow it the temporary recommendation referred to in para 2 supra.

5. Whether the changes in alignment etc resulting in the reduction of the estimate to 8 lakhs should be reported for the sanction of the Govt of India is a point on which there is no information in this Office.

(Compted)

3.4.13

Serial No.

Dewan's order dated 28.3.13 on page 1 of these notes

Financing of the Bangalore Chickballapur Ry.

Mr Bell's note of 11.6.1913 and Mr M. N. Krishna Rao's note of 3.7.13 on the subject may be read.

2. At present we may entertain reasonable hopes that the Company will be able ultimately to raise the necessary capital. Capital to the extent of Rs 9,94,000 has been subscribed, Rs 2,95,000 has been paid up and Rs 2,43,000 is on hand. The Railway Secretary says that 8 lakhs may suffice for first opening.

3. Mr M. N. Krishna Rao has suggested several alternatives in case the Company fails to raise the necessary capital. His solutions involve the extinction of the Company. I would rather that the first venture of the kind in Mysore should live.

My idea is to push on with the construction according to the programme of the Engineer-in-chief, but if the balance at the credit of the Company

NOTE—Contn. sheet.

GPE—65,000—17-6-12.

Serial No.

is exhausted to allow debit balance charging interest if necessary.

After construction is complete and the line is open the debit balance if any may be converted into debentures, consolidated loan, or shares in the name of Govt. By this means the Company would continue to exist. If the debentures or shares, which will be made available for the public, are taken up by the public, the Company will stand on its own legs.

During the time Govt funds remain invested in the business there would be no difficulty in securing effective control by Govt. to safeguard their interests.

This would be the general plan. Details can be settled only if and when the actual necessity arises.

M
4/7/13

3848
7.7.13

Dewan)

NOTE—Contn. sheet.

GPE—65,000—17-C-12.

Submitted to His Highness.

Pages 18 & 19 of notes.

I submit herewith for His Highness' information a note prepared by the Financial Secretary, in consultation with the Railway Secretary, regarding the financing of the Bangalore-Chikballapur Light Railway.

2. The authorized share capital of the Company is 12 lakhs of rupees out of which the actual subscribed capital is Rs.9,94,150. Forty per cent of the subscribed capital has been called. The actual amount collected up to 31st March 1913 is Rs.3,08,578-12-10. The Company expect that about 8 lakhs of the share capital will be fully paid up, leaving another two lakhs available for allotment in addition to the 2 lakhs remaining unallotted.

Pages 6 – 8 of notes.

3. The Secretary for Railways states that the re-alignment carried out under his supervision has very much reduced the quantities of work and he is of opinion that a sum of 8 lakhs of rupees would probably suffice for the first opening. He is of opinion that if the anticipation of the Chairman of the Company that 8 lakhs of rupees will be paid up by the share-holders should fail to materialise, Government may have to advance any balance that may be required to push the project through to completion.

4. The Financial Secretary is of opinion that, as this is the first venture of its kind, Government should afford every facility to the Company to continue to exist and that, if the balance at the credit of the Company is exhausted, the funds necessary to complete the work may be advanced by Government and interest charged on the debit balance . After the construction is completed and the line is open, the debit balance may be converted into debentures

or

or consolidated loan or shares in the name of Government as the case may be. He also thinks that, as capital to the extent of Rs.9,94,000 has been subscribed and a substantial portion thereof has been paid up, there is every likelihood of the full amount necessary for completing the work being realised.

5. I agree with the Financial Secretary that we should afford every help to the Company to continue its existence and that, in the event of there being a deficiency, Government should advance the amount. The Financial Secretary will be requested to report to Government as soon as there is any likelihood of a deficiency in the paid-up capital available for expenditure, so that Government might step in and take necessary measures to ensure the completion of the work.

M. Vijayaraghavan
15th July 1913.

Record of Cases submitted for the Orders of His Highness the Maharaja

Subject.

Proposals for financing the Bangalore-Chickballapur Light Railway.

M.53

Order.

~~KRW~~

23/7/13

Secretary to Govt

24.7.13

SUBJECT:- Financing the Bangalore-Chickballapur Light Railway.

* Slip C.

REFERENCE:- Dewan's submission Note to His Highness the Maharaja dated 19th July 1913 and orders thereon.

DIARY No. 446

1913-1914
SECTION Genl.
FILE No.
SERIAL No.

*****

No. 113 Encl 2 Files

II
28/7 FP

Forwarded, with compliments, to the Secretary to Government, Financial Department, for favour of further action.

L.A. Bell

Bangalore,
26th July 1913.
28.

Secretary for Railways,
Government of Mysore.

R. S. 12]

General and Revenue Secretariat.

File No. 153 of 1913

(24

Serial No.

Submitted. The further action to be taken in the matter is reporting to Govt of any likelihood of a deficiency in the paid up Capital & available for expenditure for the Bangalore - Chickballapur Railway so that Govt might step in & take necessary ~~extension~~ measures to ensure the completion of the work."

This may be ordered to be sent on the Railway Branch of the Comptroller's Office, which watches the Railway accounts. Otherwise instructions will have to be issued to the Compt. P.W. & Rys. to report to Govt the likelihood of deficiency

30/7/913

Forwarded U.O. to the Comptroller for favour of stating what the Amt collected as Share Capital has been appropriated & what Amount now remains to be called for & what Amount is to be collected. Instructions to be requested

By order

31-7-13

Dy Secy to Govt

Note 10

31 July 13

COMPTROLLER'S OFFICE
CIVIL BRANCH,
1 AUG. 1913
BANGALORE.
MYSORE GOVT.

R 11

4.8.13

Mis: Audit no 205 d/25/8/13

R. 153 d/25/8/13

The balance at credit of this account in Government treasuries on the 30th June 13 is Rs 169.627-3-8. A sum of Rs 23104-4-1 being

26/8

NOTE—Contn. sheet.

GPE—65,000—17-C-12.

General and Revenue Secretariat.

File No. 153 of 1913

Serial No.

being the balance with the Bank of Madras has also been transferred to the Dewan's account. A sum of Rs 105.000/- is stated to be in the Calcutta Specie Bank Bombay, and the Chairman says that instructions have been issued to the Bank to transfer the amount to the credit of the Mysore Government. Besides these, a Government of India Promote of the 3½ per cent Loan of 1903-04 for Rs 50000/- has also been received this day for safe Custody, duly endorsed in the name of the Dewan. Copy of Chairman's letter no 9699 9/11 Aug. '13 is placed in the file.

A

The total amount thus available is Rs 302.731-7-9.

The total expenditure incurred by Govt upto end of June 13 is Rs 6682-7-9.

This office has no further information on the subject.

for Comptroller

13/8/13

Sub. As the file belongs to the Railway Branch of the Comptroller's office, may this be forwarded to that office for further action, when actual necessity arises by "a deficiency in the paid up Capital available for expenditure"

27/8

NOTE—Contn. sheet.

GPE—65,000—17-C-12.

G R. S. 12]

General and Revenue Secretariat.

File No. 153 of 1913

Serial No.

A 1

No. Mensia Secretaries & Mensika Secretaries for Secretary's report to help Govt. Secretary Bhai Compt. Confidentially.

27.8.13

Secy)

Not even this is necessary. The Comptr should be asked to make a report to Govt as soon as there is any likelihood of a deficiency in the paid up capital available for expenditure so that Govt may consider the situation & make such arrangements for financing as may be considered necessary

27/8

Draft for approval is submitted

L.26 SW 30/8.

Please return Secretaries Dft

30.8.13

Draft revised is forwarded

L.26 SW 1/9 2/9.

Secy)

2.9.13

Copy to Rly Secy for information please.

2/9

Note—Contn. sheet.

GPB—65,000—17-6-12.

2/9

G. R. S. 12]

General and Revenue Secretariat.

G7 File No. 153 of 1913

Serial No.	
1	To The Comptroller P.W.&R.&B. No 1442 dy 8.9.1913. Requests him to report to Govt of any deficiency in the paid up Capital at the credit of the Bangalore Chickballapur Light Railway as soon as it can be ascertained.
2	From The Comptroller. Letter No 4610 dy 19.3.1914 Forwards a statement furnishing information re the outlay incurred and anticipated on the Construction of the Bangalore - Chickballapur Light Railway and states that there is no likelihood of there being any deficiency in the Share Capital of the Company for meeting the demand up to the end of the current official year.
	Subt. for information. May this be filed? W.D. 1/4/14 1/4/14 Sd/ 1/4.

NOTE—Contn. sheet.

GPB—65,000—17-6-12.

G. R. S. 26] 59 44

File No. 153-13
Serial No. 1.

Diary No. of letter replied to——

1442
8-9-13

General and Revenue Secretariat
( )
, *the* 191 .

To
The Comptroller

Date of issue 8-9-13

Signed by W L Nursamuchar

Sir,

As the expenditure connected with the construction of the Bangalore Chikballapur Light Railway is to be met out of the paid up Capital at its credit, I am directed to request you to be so good as to report to Govt if any deficiency in it as soon as it can be ascertained so that

over.

SUBJECT.

Govt may consider the situation and make such arrangement as the circumstances may warrant.

I have etc.

M
2/9

~~Dft~~ Secretary

H.D.6 SW
1/9

No 73 14443
8-9-13

[illegible]

List of enclosures.

Copied by

Examined by

GPE—25,000—8-8-11.

11/21/3 97

P. W. Serial No. 114]

No. 4610
R.C.566.Ed.-1

MYSORE PUBLIC WORKS DEPARTMENT,
CENTRAL OFFICE OF ACCOUNTS,

Dated Bangalore, the 19th March 1914.

It is requested that in future communications on the subject, the No. and date of this letter, and the distinguishing letters below the number as given opposite, may be quoted. All communications should be addressed as follows:—Comptroller, Mysore Public Works and Railway Branch, Bangalore.

FROM

DEWAN BAHADUR
J. S. CHAKRAVARTI, ESQ., M.A., F.R.A.S., etc.,
Comptroller to the Government
of His Highness the Maharaja of Mysore,
Public Works and Railway Branch.

DIARY No. 3737
10/3-1914
SECTION G.F.
FILE NO. 153-13
ITEM No. 2.

To

The Financial Secretary
to the Government of Mysore,
BANGALORE.

Sir,

Adverting to your letter No.Fl.1442/G.F. dated 8th September 1913, I have the honour to enclose for the information of Government a Statement furnishing particulars of outlay incurred and anticipated on the construction of the Bangalore-Chickballapur Light Railway against the C Share Capital collected so far by the Company, and to state that there is no likelihood of there being any deficiency in the Share Capital of the Company for meeting the demand up to the end of current official year. The order of Government conveyed in the letter referred to above have been noted and a report will be submitted as soon as any deficien of funds is apprehended. The chairman of the Company anticipates further collections of over a lakh during the remaining months of the official year and states that advice measures are being taken to expedite the collection.

I have the honour to be,
Sir,
Your most obedient servant,

for A. A. Sopravala
Deputy Comptroller,
P. W. and Railway Branch.

C.V.

FROM

DEWAN BAHADUR
J. S. CHAKRAVARTI, ESQ.,
M.A., F.R.A.S., etc.,
Comptroller to the Govt. of
H. H. the Maharaja of Mysore,
P. W. & Ry. Branch.

To

Dated

Despatched

Received

No.

SUBJECT.

Statement showing the probable receipts and expenditure on account of Bangalore - Chickballapur Light Ry. Co: Ltd: during the year 1913-14.

Receipts	Amount			Expenditure	Amount		
Share capital credited to Treasury				Capital outlay			
to end of October 1913.	391380	9	6	to end of November 13	148008	-	-
Do. — November 1913.	21514	9	7	Do. — December 13	16761	-	-
Do. Sale of Pro: note for Rs 5000/	4797	13	9	Value of Steel Slepers			
Do. — December 1913	22004	8	4	supplied	112500	-	-
Do. — Devaru's account in				Total to end of Dec: 13	277269	-	-
Bank of ~~Madras~~ Mysore December 13	2358	14	4	Probable outlay			
Total to end of December 13	442056	6	10	from January 1914			
Available balance on 1st January				to June 1914	144200	-	-
1914.	164787						

Amount collected and spent by the Company prior to the undertaking of the construction of the line by the Govt: is not included in this Statement pending it audit which is now in progress.

20/3

BANGALORE-CHICKBALLAPUR LIGHT RAILWAY.

GAUGE 2'-6"

LENGTH 37·95 MILES.

REPORT

and

ESTIMATES.

(Survey of 1908.)

BANGALORE:
PRINTED AT THE IRISH PRESS.
1908.

BANGALORE-CHICKBALLAPUR LIGHT RAILWAY.

GAUGE 2'-6"

LENGTH 37·95 MILES.

REPORT

and

ESTIMATES.

(Survey of 1908.)

BANGALORE:
PRINTED AT THE IRISH PRESS.

1908.

Bangalore Chickballapur Light Railway.

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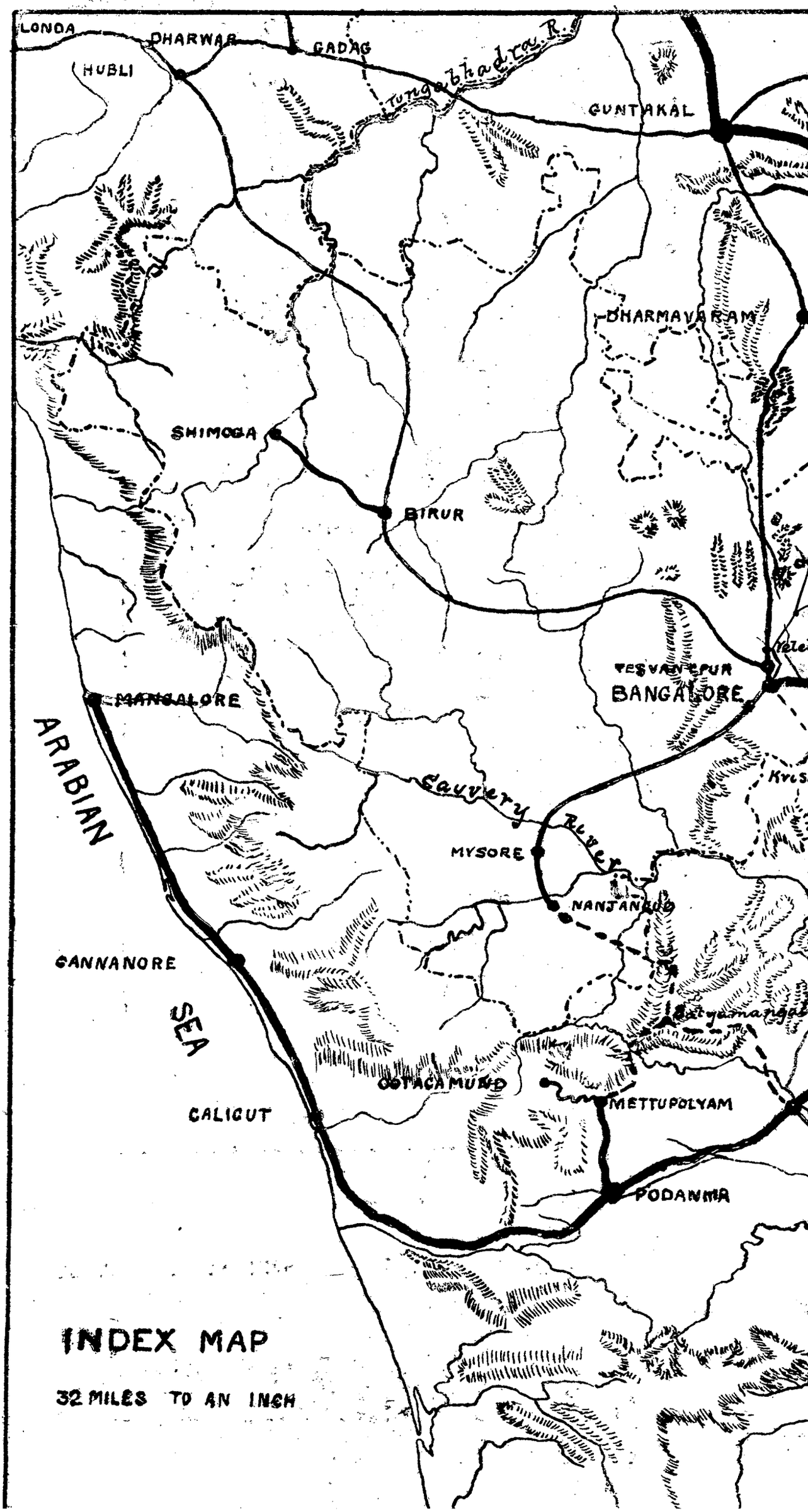
LONDA
DHARWAR
GADAG
HUBLI
Tungabhadra R.
GUNTAKAL
DHARMAVARAM
SHIMOGA
BIRUR
TESVANTPUR
BANGALORE
MANGALORE
ARABIAN
SEA
Cauvery River
MYSORE
NANJANGUD
CANNANORE
OOTACAMUND
METTUPOLYAM
CALICUT
PODANUR
INDEX MAP
32 MILES TO AN INCH

Penner R.
NELLORE
Madanapalli
RENIGUNTA
Chintamani
MADRAS
ARKONAM
KATPADI
Palar R
KOLAR
JALARPET
VILYUPURAM
PONDICHERRY
BAY OF BENGAL
Coleroon River
NEGAPATAM
TRICHINOPOLY
TANJORE
TIRUVALUR
MUTUPET
MADURA
NUBV·PRESS-BANGALORE-

THE BANGALORE CHICKBALLAPUR LIGHT RAILWAY.

LENGTH 37·95 MILES;

GAUGE 2'-6"

REPORT.

References.—The project originally submitted to Government not having met with the approval of the Railway Board, as expressed in their note dated 30th September 1907, I was deputed by the Directors of the Company to revise the plans and estimates, but, as it was not practicable to grade the old alignment to a 1 per cent grade, I found it necessary to re-align the greater part, and prepare a new estimate entirely, which is herewith submitted.

2. *Preliminary.*—The gauge of the line will be 2'—6", this gauge having been decided on for the reason that it better suits the country to be traversed, is more economical in point of cost of both construction and maintenance, and has an equal carrying capacity with the metre gauge; as well as the probability of its being linked up with other lines of the same gauge that are now being projected in the direction of Krishnagiri, Palcode, and Dharmapuri in the border district of Salem in the Madras Presidency.

The fixed point from which all distances are measured is marked by a square stone sunk into the ground ten feet to the North of the Mysore Road at a point 680 feet West of where the Arlepete Street joins it near St. Joseph's Chapel.

All levels given in plans are reduced to G. T. S. Value.

The country to be traversed by the line is more or less of a rolling down, the ridges and hollows running at right angles to the general direction of the line. The soil for the most part is a sandy red clay with laterite in a number of the ridges, and numerous, though small, outcrops of granite scattered freely over the country. Large irrigation tanks abound; every hollow being dammed at distances of one or two miles to hold up water for irrigation purposes. The country offers no obstacles to a more or less straight alignment beyond the curvature required to mount the ridges without getting into too deep cutting.

The total length of the line will be 37·95 miles.

3. *Location.*—Bangalore has been fixed as the present Southern terminus of the line, instead of Yelahanka, for the reason that this section from Yelahanka to Bangalore would have to be constructed when the line was extended Southwards through Hosur to Palcode, etc., furthermore, in the case of goods and passengers booked through from Chickballapur to stations East of Bangalore, there would have to be an extra transhipment at Yelahanka.

Starting from the fixed point referred to above, the line runs Northwards across the site of the old Barr Infantry Lines and along "Railway Road" up to chains 40, where it enters the Madras Railway Compound. There being insufficient room for the line on this "Railway Road," the line should be moved 30 feet to the left to come within the Southern Maharatta Railway Company's Compound wall, there being ample room for it without interfering with any sidings, Station machinery, buildings or roads, beyond two small sheds which can be dismantled and re-erected alongside ; nor would this interfere with the foot-bridge leading to Southern Maharatta Railway goods and transhipment platforms, there being ample room to pass two lines of rail. Entering the Madras Ry. Company's land at Chs. 40, the line traverses a large compound occupied by Staff-quarters, but interferes with no buildings beyond a block of menials quarters, the two end rooms of which would have to be dismantled and added on to the other end. At mile 1, the line crosses, on the level, the approach road from the City to the Bangalore City Station, M. & S. M. Rys., and, again entering the Madras Railway compound runs along the unmetalled accomodation road between staff-quarters, but interferes with no buildings, etc. At $1\frac{1}{4}$ mile it crosses, by an underbridge, the approach road from the Cantonments to Bangalore City Station, and 100 feet further on, crosses the Madras Railway (Bangalore branch) on the level, by means of a "diamond," protected on all four sides by slip-points interlocked with signals, and worked from a cabin in the Northern angle, exactly in the same way that the Southern Maharatta Railway crosses the G. I. P. Ry., at Poona, and the R. M. Ry., crosses the B. B. & C. I. Ry., at Rutlam. Provision has been made for this in the estimates. The line here bends to the right, and, curving very considerably, follows the line of the collecting bund of the Dharmambudi Tank to avoid low ground to the left, and eke out the grade, crossing two roads on the level at mile $2\frac{7}{8}$ and $3\frac{3}{8}$, then, running to the back of Paul's vineyards, and curving to the right, crosses the Bellary Road by an over-bridge at mile 4, and passing clear of the Maharaja's polo-ground, crosses the Tumkur Road on the level at Mile $4\frac{1}{2}$. At mile 5 the line strikes the Bellary Road, and running parallel to it for $\frac{3}{4}$ of a mile, crosses it to avoid heavy rock cutting, and rejoining the road near the Hebbal tank at mile $6\frac{1}{4}$, runs along its left edge for half a mile, and crossing the projecting sleeve of the tank, again crosses the Bellary Road on the level, but keeps away to the right to avoid a high ridge. For the next 3 miles the line runs across cultivated land and then drops to a tank at mile 10, but rises again to cross the Bellary Road at

mile 10½, and enter Yelahanka Station on the Southern Maharatta Railway at mile 10¾. Running almost parallel to Southern Maharatta Railway and at the back of the passenger platform and Station building, the line swings to the right, traverses a few fruit gardens which cannot be avoided, and follows the line of the bund of the Yelahanka tank, whence it runs up to cross the Bellary Road by means of an overbridge at mile 12, and then follows to the right of the Bellary Road at a distance of a hundred feet or so, till it links up with the former alignment at mile 13¼, which it follows up to mile 23¼, traversing for the greater part of this 10 miles, along the left hand side of the Bellary Road. From mile 23¼, the line continues along the left-hand edge of the road to mile 24 when it crosses the road for the last time, and from this point, runs parallel to it at a distance of a chain or two till Chickballapur is reached at mile 37¾, deviating only to avoid the waste weir of a tank at mile 30½.

Junctions with other lines will be at Bangalore City, and at Yelahanka. At the former, Arlepete Station will form the present terminal yard, where all local passengers and goods will be booked, but at Bangalore City Station the B. C. L. Ry., trains will merely stop to pick up and put down passengers from and to the M. & S. M. Rys., a siding here being quite unnecessary. For transhipment of goods, sidings will be laid off from main line to run into the M. & S. M. R., metre and broad gauge yards, the trains being worked from Arlepete to Bangalore City by the station-staff of the former. At Yelahanka, a loop-siding will be provided, also a dead end, with a goods transhipment platform 30 feet wide, with a covered goods shed lying between the metre and narrow gauge lines. The Northern end of the loop at this Station is fixed so that the narrow gauge trains, both up and down, may stand clear of the road approaching from the town, and give inward and outward local passengers free access to the S. M. Ry., platform.

As the location of the line throughout, runs near the watershed between the Arkavati and the Pennar rivers, there are no large nullahs or important rivers to cross.

The site chosen for the Arlepete terminus at Bangalore, is the only one available, and lies contiguous to the chief trade-centre of the town.

That chosen for the Devanhalli Station, has been selected as it is most suitable for a junction yard in the event of this being made the junction for Sidlaghatta, Chintamani, and Madanapalli, and is, like the Chickballapur yard, the nearest point to the town.

Alternative routes .—The line, as actually set out, traverses very low ground and part of the Government Experimental farm just beyond Hebbal, at mile 6½, but should be diverted to traverse the left-hand edge of the road across the Hebbal tank, and continue along the dotted line shown in plan up to curve No. 33 at mile 8½.

At mile 18¾ again, an undoubtedly better alignment could be got by following the dotted line shown in plan (up to mile 21) which follows the contour of the country, but this section lay beyond the scope of the present operations.

Further-more, where the old alignment runs along the Bellary Road, the centre line of the Railway should be moved back 6 to 10 feet or more, so as to allow 16 feet clear fairway for vehicular traffic, and, as the road is anything from 16 to 24 feet wide, and 8 feet from centre line may be taken as the minimum safe distance at which to pass a moving cart, the centre line of railway should be 24 feet from the far edge of the roadway, in other words, should, on an average, be 4 feet clear of the near edge of the road, whereas at present the centre line is well on to the metalling, the offsetts to left and right, in several places, having been measured at 6 and 12 feet respectively. These alterations should be made at the time of construction.

4. *Gradients and Curves.*—The ruling gradient has been fixed at 1 in 100, the total length of this grade is 27. 09 miles, or 73 per cent of the total length of the line.

52 per cent of this ruling grade falls with the load to Bangalore, while 48 per cent rises against it. The greatest length of this is 2·5 miles at mile 5 and rises against the load.

576 feet (10 deg.) has been fixed as the minimum radius of curve; of this there are 11 curves totalling 1·12 miles, the longest being No. 11 at mile 2. No compensation has been allowed in section for any curves on grades.

5. *Construction & Engineering.*—The general character of the works will be alternate cutting and bank, each averaging half a mile in length and of varying height and depth. The Bridging will be light as there are none but minor bridges and culverts, which will be made of stone in lime mortar. The number of lineal feet of waterway allowed per mile is 18.5.

The fencing to be provided for Stations, level-crossings etc., will be iron standards with 5 lines of wire. The entire line is not to be fenced.

The Permanent-way estimated for consists of 24 feet flanged steel rails, 25lbs to the yard, fished together with 4 holed fish plates (B. L. Ry., pattern) laid on wooden sleepers 5ft x 7" x 4", ten sleepers to the rail, and secured thereto by dogspikes. Hard and durable jungle-wood, not liable to be attacked by white-ants, will be selected and used. The ballast will be of broken stone, procurable everywhere laid to a depth of 6 inches below the sleeper.

At all stations rail-level platforms will be provided for passengers. Goods platforms at Arlepete, Yelahanka, Devanhalli, and Chickballapur will be of stone masonary 1 foot above rail and from 100 to 200 feet long.

All necessary workshops will be erected at Arlepete, but accommodation will only be provided for erection of Loco, Carriage and Wagon stock, and facilities for effecting ordinary running repairs, heavier work such as turning down of wheels, etc., being done by the S. M. Ry., whose shops are close at hand.

Water is everywhere available for drinking purposes, at a depth not exceeding 15 feet. At Arlepete a well will be sunk at the edge of the adjacent tank, the water being pumped to an overhead tank for service to Locos, etc. Water for engines will also be provided at Doddajala (mile 17·33), Devanhalli (mile 24·77) and Chickballapur (mile 37·95), by means of pumps, from wells to be sunk at these stations. Small unlined wells will be provided at other stations for drinking purposes for the staff and passengers.

A small workshop and running shed will be provided at Arlepete, but no running shed will be provided at Chickballapur, as the line being only 38 miles in length, the train can make one round trip within the day. As the Locos can run fore and aft, neither turn-tables nor triangles will be provided.

The line being only 38 miles long, an engine can take a train out in the morning and return the same evening, a run of 76 miles ; so that no engine changes will be necessary. Two engines only will be provided at the outset, this being sufficient to work the traffic of the line at present.

6. *Labour and Materials.*—Construction will be carried out on the petty contract system. Unskilled labour is plentiful all along the route, and skilled labour is also procurable locally, though not to any great extent.

Stone for building purposes is procurable at innumerable quarries along the route, as also are lime, ballast, fuel, etc. Sleepers will be obtained from the Mysore Forests.

Buildings will be roofed with Mangalore Tiles laid on sawn Mysore Teak.

There is an excellent road running within a quarter of a mile of the line throughout and the surface soil being hard, lorries carrying girders can with ease reach any site required. The rate for carting varies from two to three annas per ton per mile for heavy material. A depot for the receipt and despatch of material will be made at Arlepete.

7. *Arrangement of Staff.*—The construction will be effected by an Executive Engineer with two assistants, at Yelahanka and at Devanhalli, the former having a length of 16 miles and the latter 17, the first 5 miles being under the direct charge of the Executive Engineer, with head-quarters at Bangalore.

Staff quarters at all stations are provided for in the estimates. Accommodation for the Executive Engineer can be obtained in Bangalore. Quarters for the assistant engineers are easily procurable at Yelahanka, Devanhalli and Chickballapur.

Temporary offices and stores will have to be built. Hutting for labour on construction will not be required.

The country traversed by the line is very healthy, and good water readily obtainable.

There being Government dispensaries with resident apothecaries at Bangalore, Yelahanka, Devanhalli and Chickballapur, special medical arrangements will not be required.

The location of the line does not affect any religious edifice, buildings, etc.

8. *Land.*—Land necessary for the construction of the line will be given free, by the Mysore Government, and in a few cases where the line runs on private holdings the land will be acquired under the Land Acquisition Act. The price to be paid for such land varies from Rs. 50 to 150 an acre. No mining rights exist on the land required for the line.

9 *Traffic Statistics.*—Stations have been provided at Bangalore (Arlepete, Mile 0), Bangalore City (Flag Station Mile 1), Yelahanka (mile 11), Doddajala (mile 17·33), Devanhalli (mile 24·77), Avati (mile 28·50), Nundy Road (mile 33·71) and Chickballapur (mile 37·95).

The country traversed by the line is for the most part well cultivated, producing rich crops of paddy, sugarcane, potatoes, onions, groundnuts, turmeric, tamarind, oil and pulse seeds, as well as extensive crops of ragi, all of which are largely exported. Moreover, large crops of vegetables are grown in Devanhalli and Chickballapur Taluqs and find a ready market in Bangalore ; betel leaves are daily exported to Bangalore in large quantities ; and extensive areas are under mulberry cultivation, particularly in Chickballapur, Sidlaghatta and Chintamani Taluqs ; silk farming being very largely carried on, and the silk exported by jutka to Bangalore, whence it is despatched by rail to centres as far north as Bengal, for manufacture. Raw hides and tanning-bark are also exported in very large quantities.

The imports are chiefly—Piece-goods, Hardware, Tiles, Salt, Kerosene oil, Bamboos, Mats, Cotton, Yarn, Timber, Cocoanuts, and Arecanuts.

The daily exports and imports are found from statistics to be on an average—

	Exports Tons.	Imports Tons.
Devanhalli	7	3
Chickballapur	25	15
Sidlaghatta	5	3
Other Stations	5	2
Total...	42	23

making a daily total of 65 tons of inward and outward goods, or 23,725 tons annually. This gives a total of $(23,725 \times 38) = 9,01,550$ ton-miles annually, which at 14 pies per ton-mile gives an annual income of Rs. 65,738 from goods.

There is also a large passenger traffic between Bangalore and Chickballapur; no less than 50 jutkas, each seating four, finding ample employ in carrying these, in addition to a large number of pair-bullock carts carrying 10 to 12 passengers each. Assuming that a hundred passengers are carried in each train daily for the total distance, the daily passenger-miles will be $(2 \times 100 \times 38) = 7,600$, which at 3 pies per passenger-mile gives a daily turnover of Rs. 118—12—0, or Rs. 43,344 per annum.

In addition to the above, the carriage of mails and parcels may be expected to yield another Rs. 5,000 per annum, bringing up the total of gross receipts under the three heads of traffic—goods, passengers, and mails and parcels,—to Rs. 1,14,082.

Assuming that the working expenses will amount to Rs. .2 per train-mile, a very high figure, and taking the daily train-mileage as 80, the working expenses will amount to $(2 \times 80 \times 365)$=Rs. 58,400. Deducting this amount from the gross receipts, Rs. 1,14,082 mentioned above, leaves a net credit balance of Rs. 55,682 or in round figures Rs. 56,000.

The bulk of this traffic will be local, though it will increase with the greater facility for communication and the greater part of both silk and betel-leaves, and a large portion of the sugar, jaggory, potatoes and other produce will be exported direct beyond Bangalore.

There is no likelihood of any coal, minerals, or petroleum being found on the route; but there are many important Fairs held annually in the surrounding country, and these are likely to bring in traffic to a large extent periodically.

In conclusion, it may be as well to compare the cost of construction per mile as determined in the present estimate (*i. e.*, Rs. 32,206 per mile) with the Rs. 38,000 suggested by the Railway Board at the foot of their note; the difference of Rs. 6,000

is readily accounted for in the fact that we have reduced the axleload from 5 to 3 tons, which enables us to use a 25lb. rail instead of the 30lb. originally contemplated, and this reduces the cost of permanent way by about Rs. 1,000 per mile roughly, another two thousand being accounted for by providing only for 2 locomotives instead of 4, two being considered sufficient at present, as stated above, and the great difference in the cost of the lighter rolling stock; while the estimate of cost of formation amounts to only 17 per cent of the total cost, instead of 25 per cent suggested by the Board, which will account for another Rs. 3,000 per mile approximately; so that Rs. 32,206 per mile for the road estimated for, is equivalent to Rs. 38,000 for the heavier road and stock.

Bangalore,
31st October 1908.

LESLIE. PAYNE,
Engineer in Charge of Survey.

Bangalore Chickballapur Light Railway.

(Gauge 2'-6".) *(Length 37·95 miles.)*

CURVE-ABSTRACT.

Angle of Curvature or Radius.	Number of each.	Length. (*Miles*)	Curvature. (*Degrees.*)
10° = (576 feet Radius)	11	1·117	·588°-13'
8° = (718·5 do)	4	·614	258°-58'
7°-30' = (766 do)	1	·065	25°-38'
6° = (957 do)	5	·435	137° 41'
5° = (1147 do)	22	1·994	539°-12'
4 = (1433 do)	3	·449	94°-58'
3°-20 = (1719 do)	1	·069	43°-0'
3° = (1911 do)	8	·464	101°-55'
2° = (2865 do)	12	·732	91°-8'
1° = (5730 do)	20	1·058	56°-36'
Less than 1°	4	·345	3°-44'
Total...	91	7·342	1941°-3'

Average curvature per mile of line 51·14 degrees.

Percentage of Curve to total length of line ·181.

Bangalore Chickballapur Light Railway.

(Gauge 2'-6".) *(Length 37·95 miles.*

GRADIENT ABSTRACT.

Inclination.	Number of each.	Total Length (*miles.*)	Percentage of total length of line.
1 in 100 or 1 per cent	39	27·09	73·0
1 in 167 or·60 do	1	0·15	0·4
1 in 200 or·50 do	3	0·97	2·0
1 in 300 or·33 do	1	0·46	1·0
1 in 400 or·25 do	1	0·36	0·9
Level	41	8·92	23·0
Total...		37·95	100·3

Bangalore Chickballapur Light Railway.

(Gauge 2'-6".) *(Length 37·95 miles.)*

BRIDGE ABSTRACT.

TYPE OF BRIDGE.		Total No. of Spans.	Waterway Lineal ft.	
Class.	Spans.			
Slab tops... ...	2 feet	20	40	
Rail openings ...	2 feet	24	48	
Arched culverts ...	6 feet	6	36	
Do. ...	10 feet	10	100	
Girders ...	6 feet	5	30	
Do. ...	12 feet	24	288	
Do. ...	20 feet	8	160	
	Total...	...	702	

Total Water-way for the whole line	...	702 feet.
Average per mile	...	18·5 feet.

Bangalore Chickballapur Light Railway.

(Gauge 2'-6".) *(Length 37·95 miles.)*

LIST OF STATIONS.

Serial No.	Name.	Class.	Through Mileage from Bangalore.	Distance Apart.	Remarks.
			Miles.	*Miles.*	
1	Bangalore (Aralepete) ...	II.	0·00	...	Terminal-Watering.
				1·00	
2	Bangalore City ...	Flag	1·00	...	Flag Station only.
				9·88	
3	Yelahanka ...	III.	10·88	...	Joint Station with S. M. Ry.
				6·45	
4	Jala	III.	17·33	...	Watering.
				7·44	
5	Devanhalli	II.	24·77	...	Watering-future Extension to Chintamani to branch off here.
				3·73	
6	Avati	III.	28·50	...	...
				5·21	
7	Nandi Road ...	III.	33·71	...	Less than 3 miles to foot of Nandidrug Hill.
				4·24	
8	Chickballapur ...	II.	37·95	...	Watering-Terminal.

Bangalore Chickballapur Light Railway.

(Guage 2-'6") *(Length 37·95 miles.)*

STATION BUILDINGS.

NAME AND STATION.	Class.	Mileage.	Distance apart.	Goods Shed.	Station Building.	Passenger Platform.	Goods Platform.	Station Masters' Quarters.		Asst. Station Masters' Quarters.		Menials' Quarters.		Well. 3 ft. dia.
			Miles.	sq. ft.	sq. ft.	Length Feet.	Length Feet.	No.	sq. ft.	No.	sq. ft.	No.	sq. ft.	No.
Bangalore (Aralepete)	II	...	...	990	2,079	300	200	1	375	1	166	6	600	...
Bangalore City	Flag	1·00	1·00	...	Nil.	300	...	...	....	...	...	...	...	...
Yelahanka	III	10·88	9·88	800	Nil.	300	200	....	....	...	...	1	100	...
Jala	III	17·33	6·45	...	1,354	300	...	1	250	...	...	2	200	...
Devanhalli	II	24·77	7·44	....	2,079	300	100	1	375	...	...	3	300	...
Avati	III	28·50	3·73	...	1,354	300	100	1	250	...	...	2	200	1
Nandi Road	III	33·71	5·21	...	1,354	300	...	1	250	...	...	1	100	1
Chickballapur	II	37·95	4·24	990	2,805	300	200	1	375	1	166	5	500	...

Bangalore Chickballapur Light Railway.

(Gauge 2'-6".) *(Length 37·95 miles.)*

STATION MACHINERY.

NAME OF STATION.	Piping 3" galv. iron.	Water Tanks.	Well.	Hand Pump.	Switches.			Crossings.			Main Signals.	Distant Signals.	Engine Shed.	Loco Ashpits.
	Lin. feet.	Capacity, gallons.	Dia. feet.	No.	15 feet.	12 feet.	Total.	1 in 12	1 in 9	Total.	No.	No.	Square feet.	No.
Bangalore (Aralepete)	250	2,000	8	1	3	7	10	3	7	10	...	...	1,000	1
Bangalore City	...	...	...	...	...	...	...	...	...	...	1	...	...	...
Yelahanka	...	...	...	...	1	...	1	1	...	1	1	...	...	...
Jala	250	2,000	8	1	2	...	2	2	...	2	1	...	...	...
Devanhalli	250	2,000	8	1	2	2	4	2	2	4	1	...	...	...
Avati	...	...	...	...	2	1	3	2	1	3	1	...	...	...
Nandi Road	...	...	...	...	2	...	2	2	...	2	1	...	...	...
Chickballapur	250	2,000	8	1	4	5	9	4	5	9	1	...	...	...

Bangalore Chickballapur Light Railway.

(Guage 2-'6") *(Length 37·95 miles.)*

LIST OF ARTICLES REQUIRED FROM ENGLAND.

Description.	Quantity Required.	English Cost (c. i. f. Madras) £ Sterling.	Rate of Exchange	English Cost in Rupees.	Indian Cost in Rupees.	Total Cost. Rupees.	Date by which delivery is required.
Girders for Minor Bridges ...	49·9 tons	605	15 Rupees to the pound Sterling.	9,075	1,995	11,070	1st January 1910.
Fencing (single.)	3 miles	80		1,200	300	1,500	" "
Permanent Way	40·5 "	14,548		2,18,220	2,42,995	4,61,225	" "
Station Machinery	as per list	1,000		15,000	2,395	17,395	31st March 1910.
Plant and Workshop Machinery ...	" "	2,000		30,000	2,958	32,958	" "
Locomotives	2 No	3,700		55,500	2,775	58,275	1st January 1910.
Coaching Stock	8 "	4,150		62,250	3,113	65,363	31 March 1910.
Goods Stock	24 "	3,900		58,500	2,925	61,425	1st January 1910.

Bangalore Chickballapur Light Railway.

(Gauge 2'-6".) *(Length 37·95 miles.)*

LIST OF DRAWING.

No.	PARTICULARS.
1.	Index plan and section
2-14.	Detailed plan and sections.
15.	Station Buildings
16.	Station Yards

N. B :—The 'Light Type' of Bridges given in 'Stones Tables' has been adopted as the type for Bridges and Culverts.

Bangalore Chickballapur Light Railway.

EXPLANATORY NOTE ON THE VARIATION BETWEEN THE ESTIMATE PREPARED IN 1904, AND THE REVISED ESTIMATE NOW SUBMITTED FOR SANCTION.

I. *Preliminary Expenses.*—Increase Rs. 2,648.

Due to the cost of new survey being added to the old.

II. *Land.*—Increase Rs. 3,361.

Due to a higher rate per mile having been provided.

III. *Formation.*—Increase Rs. 58,865.

Due to an increase of 8 per cent. in the quantity of Earthwork, necessitated by the adoption of an easier maximum grade, and to the provision of higher rates, about 33 per cent. better than those originally provided.

IV. *Bridge-Work.*—Increase Rs. 25,067.

Due to the provision of higher rates ; though the lineal feet of waterway per mile has been decreased from 23·86 of former Estimate to 18·5, the height of banks has been increased, and, with it, the quantities of masonry.

V. *Fencing.*—Decrease Rs. 12,820.

Due to the excision of Rs. 20,000 nearly, provided in former Estimate for protection wall to sleepers, which is unnecessary ; and out of this a provision of Rs. 1,500 has been made for Fencing, and the provision for road-crossings has been increased by Rs. 5,000.

VI. *Electric Telegraph.*—Increase Rs. 1,897.

No provision had been made, in original Estimate, under this head.

VII. *Ballast and Permanent Way.*—Increase Rs. 88,813.

In addition to the saving effected by the adoption of a lighter road, and by the decrease in the length of line and sidings from 43 miles to 40½, the increase is due to very much better rates having been provided at the instance of the Company's Consulting Engineers at home.

VIII. *Stations and Buildings*—Decrease Rs. 1,974.

A saving of some Rs. 16,000 has been effected by eliminating the turntables and weigh-bridge provided for in original Estimate, and a smaller provision for Stations and Offices, while some Rs. 14,000 of the above has been utilised for a larger allotment being made for Workshops and Staff quarters.

IX. *Plant.*—Decrease Rs. 6,985.

Due to a smaller but adequate allotment being made for Loco : and Carriage and Wagon plant.

XI. *Rolling Stock.*—Increase Rs. 30,511.

The number of Locomotives provided for has been reduced from 4 to 2, but, as the price provided for each has been, doubled there is no variation in this item. The Carrying-capacity of the Coaching Stock remains the same as before, the above increase being entirely due to the provision of better rates.

XII. *General Charges.*—Increase Rs. 19,633.

Due to a more liberal provision being made.

Net increase in cost of Construction.—Rs. 2,09,016.

Furthermore, as against "Rs. 2,00,000 for other charges debitable to Capital account," referred to by the Railway Board in their Note, a provision of Rs. 1,51,066 has been made to meet interest on Capital during construction, Consulting Engineers' fees etc. etc., bringing the *Grand Total* to Rs. *13,73,278*. or Rs. *36,239* per mile.

Bangalore Chickballapur Light Railway.

(*Gauge 2'-6".*) (*Length 37·95 miles.*

ABSTRACT OF COST.

HEADS OF ACCOUNT.	Total cost in Rupees.			
	Sub-head.		Main-head.	
	Total cost Rs.	Rate per Mile Rs.	Total cost Rs.	Rate per Mile Rs.
I. *Preliminary Expenses:*—	...	...	10,450	275
1. Survey expenses	5,700	150	...	...
2. Plant	950	25	...	...
3. Establishment	3,800	100	...	...
II. *Land*:—	11,954	315	11,954	315
III. *Formation*:—	...	...	2,10,960	5,559
1. Earth-work	2,10,960	5,559	...	...
2. Tunnels	...	...	...	...
IV. *Bridge-work*:—	...	...	1,24,334	3,276
1. Major Bridges	...	...	...	...
2. Minor Bridges	1,24,334	3,276	...	...
V. *Fencing*:—	...	...	21,902	578
1. Fencing	1,500	41	...	...
2 Road-Crossings	19,885	524	...	...
3. Mile and Gradient posts	517	13	...	...
VI. *Electric Telegraph*:—	1,897	50	1,897	50
VII. *Ballast and Permanent Way*:—	...	...	5,00,338	13,184
1. Ballast	39,123	1,031	...	...
2 Permanent Way	4,61,215	12,153	...	...
VIII. *Stations and Buildings*:—	...	...	89,902	2,368
1. Stations and Offices	22,592	595	...	...
2. Workshops and Stores	22,050	581	...	...
3. Staff quarters	14,700	387	...	...
4. Station machinery	30,560	805	...	...
IX. *Plant*:—	...	...	22,887	602
1. Engineering	9,769	257	...	...
2. Locomotive	5,250	138	...	...
3. Carriage and Wagon	5,250	138	...	...
4. Station and Office Furniture	2,618	69	...	...
X. *Ferries*:—	...	...	...	...
1. Ferries	...	...	...	...
2. Floating Bridges	...	...	...	...
XI. *Rolling Stock*:—	...	...	1,85,063	4,876
1. Locomotive	58,275	1,535	...	...
2. Carriage and Wagon	1,26,788	3,341	...	...
XII. *General Charges*:—	...	...	42,525	1,120
1. Direction	...	...	...	...
2 Engineering	35,005	922	...	...
3. Stores	2,384	63	...	...
4. Audit and Accounts	4,292	113	...	...
5. Medical and Sanitation	...	...	...	...
6. Locomotive	718	19	...	...
7. Traffic	126	3	...	...
Net cost of Construction ... ... Rs.			12,22,212	32,206
Add, for Directors,' Consulting Engineers,' and Solicitors' fees, stamp duties, promotion money etc., @ 6 per cent on above Rs.			73,333	
Total cost, Rs.			12,95,545	...
Add, for interest on above during construction at 4 p. c. per annum for 1½ years Rs.			77,733	...
Capital required, Grand Total Rs.			13,73,278	36,239

Bangalore Chickballapur Light Railway.

(Gauge 2'-6".) *(Length 37·95 miles.)*

I. PRELIMINARY EXPENSES.

DESCRIPTION.	QUANTITY.	RATE Rs.	UNIT.	COST Rs.
1. Survey Expenses	Miles 38	150	Per Mile	5,700
2. Plant	Lump sum			950
3. Establishment	Lump sum			3,800
			Total cost Rs. ..	10,450
			Rate per mile Rs. ...	275

II. LAND.

DESCRIPTION.	QUANTITY.	RATE Rs.	UNIT.	COST Rs.
Land, necessary for the construction of the line, will be given free by Mysore Government ...				
Compensation for damage to crops, trees, etc. ...	Miles 37·95	300	Mile	11,385
Add,—for contingencies,—5 per cent.				569
			Total cost Rs. ...	11,954
			Rate per mile Rs. ...	315

III. FORMATION.

Description.	QUANTITY.	RATE Rs.	UNIT.	COST Rs.
1. Earthwork	c. ft.			
Earthwork in Banks ...	158,74,928	6	o/oo	95,250
Do in Cuttings ...	117,40,426	9	o/oo	1,05,664
			Cost Rs. ...	2,00,914
Add,—for contingencies,—5 per cent.				10,046
			Total cost Rs. ...	2,10,960
			Rate per mile Rs. ...	5,559
2. Tunnels ...			*Nil.* ...	...

Bangalore Chickballapur Light Railway.

(Gauge 2'-6") *(Length 37·95 miles.)*

IV. BRIDGE WORK.

DESCRIPTION.		Quantity.	Rate Rs.	Unit.	Cost Rs.
1. Major Bridges :—		Nil.			
2. Minor Bridges :—					
Excavation of foundations	c. ft.	1,96,641	20/	o/oo	3,933
Concrete	c. ft.	89,232	18/	o/o	16,062
Masonry in foundations	c. ft.	68,524	23/	„	15,761
do in Superstructure	c. ft.	1,79,932	27/	„	48,582
Coping 6"	c. ft.	6,735	75/	„	5,052
Arching	c. ft.	8,120	100/	„	8,120
Ashlar	c. ft.	1,461	200/	„	2,922
Stone slabs	c. ft.	664	50/	„	332
Girders (c. i. f. Madras)	tons.	48·96	180/	ton	8,813
„ (Indian cost)	„	48·96	40/	ton	1,958
Petty iron work (c. i. f. Madras)	cwt.	18·55	14/	cwt.	260
(Indian cost)	„	18·55	2/	cwt.	37
Timber	c. ft.	1120·20	3/8	c. ft.	3,921
Backing and filling	c. ft.	1,77,296	1/8	o/o	2,660
					1,18,413
Add,—for contingencies,—5 per cent.					5,921
				Total cost Rs...	1,24,334
				Rate per mile Rs...	3,276

Bangalore Chickballapur Light Railway.

(Gauge 2'-6".) *(Length 37·95 miles.)*

V. FENCING.

DESCRIPTION.	Quantity.	Rate Rs.	Unit.	Cost Rs.
1. Fencing :—Iron standards, with five lines of wire, erected,— ...	miles 3	500	Mile	1,500
			Rate per Mile Rs.	41
2. Road Crossings :—				
Earthwork .. c. ft.	5,22,855	7	o/oo	3,660
Soleing 6" ... c. ft.	57,480	3	o/o	1,724
Metalling 6" ... c. ft.	57,480		o/o	2,874
Guard rails, with distance blocks bolts, dog-spikes, etc., prs.	38	50	pair	1,900
Stone Gate-posts 9" No.	80	6	each	480
Gate Lodges ... No.	10	200	each	2,000
Wooden gates ... No.	20	30	each	600
Overbridges (12 ft. arch) No.	2	1,850	each	3,700
Underbridge (2 ten ft. girders) No.	1	2,000	each	2,000
				18,938
Add,—for contingencies,—5 per cent.				947
			Total cost Rs...	19,885
			Rate per mile Rs...	524
3. Mile and Gradient posts :—				
Gradient posts ... No.	86	4	each	344
Mile posts ... No.	37	4	each	148
				492
Add,—for contingencies,—5 per cent...				25
			Total cost Rs.	517
			Rate per Mile Rs.	13

VI. ELECTRIC TELEGRAPH.

DESCRIPTION.	Quantity.	Rate Rs.	Unit.	Cost Rs.
Electric Telegraph, including instruments, erection, and rent of wires for 1 year	miles 37·95	50	Mile	1,897
			Cost Rs...	1,897
			Rate per mile Rs...	50

Bangalore Chickballapur Light Railway.

(Gauge 2'-6".) *(Length 37·95 miles.)*

VII. BALLAST AND PERMANENT WAY.

1. Ballast.

DESCRIPTION.	Quantity.	Rate Rs.	Unit.	Cost. Rs.
Ballast :—	Miles			
(a) In main line	37·95	966	Mile	36,660
(b) In sidings	2·55	966	...	2,463
			Total cost Rs...	39,123
			Rate per mile Rs...	1,031

COST OF BALLAST REQUIRED FOR 1 MILE OF SINGLE TRACK.

DESCRIPTION.	Quantity.	Rate Rs.	Unit.	Cost Rs.
Broken stone Ballast, six feet wide at rail-level, 8 feet 2 inches wide at formation level, and six inches deep beneath sleeper ...	c. ft. 36,775	2.5	o/o	920
				920
Add,—for contingencies,—5 per cent.				46
			Cost, per mile of single track Rs...	966

Bangalore Chickballapur Light Railway.

(Gauge 2'-6".) *(Length 37·95 miles.)*

VII. BALLAST AND PERMANENT WAY.

2. Permanent Way.

DESCRIPTION.	Quantity.	Rate Rs.	Unit.	Cost Rs.
Permanent way :—	Miles.			
(*a*) In main line	37.95	11,388	Mile	4,32,175
(*b*) In sidings	2.55	11,388	„	29,040
			Cost Rs.	4,61,215
			Rate per mile Rs.	12,153

COST OF PERMANENT WAY, LAID, PER MILE OF SINGLE TRACK.

DESCRIPTION.	Quantity.	Rate Rs.	Unit.	Cost Rs.
Rails,—flanged, steel, 25lb to the yard, in lengths of 24 feet (220 prs) c. i. f. Madras	Tons 39·28	117	Ton	4,596
Fishplates-fourholed, weighing 5·6 lbs. per pair,—(462 prs.) c. i. f Madras.	„ 1·15	158	„	182
Fishbolts, with nuts, $\frac{1}{2}$" × $\frac{5}{8}$" × 2 $\frac{5}{16}$" each weighing ·31 lb.—(1848 No.) c. i. f. Madras	„ ·26	338	„	88
Grover washers—(1848 No.) c. i. f. Madras	No. 1848	30	o/oo	56
Wooden sleepers—5" × 7" × 4" ten to the rail, with 5 o/o for wastage, delivered in Bangalore	No. 2310	2	Each	4,620
Dogspikes—4 per sleeper, each weighing ·20 lb. with 10 o/o for wastage c. i. f. Madras	Ton ·86	225	Ton	194
Freight on English material from Madras to Bangalore including all handling	Tons 42·05	14	„	589
Freight on all P. W. Material, from Bangalore to rail head, (average lead 19 Miles)	Tons 85·50	2	„	171
Laying track, including packing, boxing and maintenance for six months ..	Mile 1	350	Mile	350
			Net cost Rs...	10,846
Add,—for contingencies,—5 per cent. ...		...	Rs...	542
Cost of one mile of permanent way, laid ;		...	Rs...	11,388

Bangalore Chickballapur Light Railway.

(*Gauge 2'-6."*) (*Length 37·95 miles.*)

VIII. STATIONS AND BUILDINGS.

DESCRIPTION.	Bangalore (Aralepetc.)	Bangalore City.	Yelahanka.	Jala.	Devanhalli.	Avati.	Nandi Road.	Chickballapur.	Total cost.
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
1. Stations and Offices :—									
Station Buildings ...	2,987	250	...	1,759	2,987	1,759	1,759	4,235	15,736
Goods' Sheds ...	990	...	800	....	...	...	...	990	2,780
Passenger Platforms ...	100	50	100	50	100	50	50	100	600
Goods' Platforms ...	400	...	400	..	200	200	....	200	1,400
Road Approaches ...	250	...	100	....	150	150	...	350	1,000
Total...	4,727	300	1,400	1,809	3,437	2,159	1,809	5,875	21,516
Add,—for contingencies,—5 per cent.									1,076
Total cost Rs...									22,592
Rate per mile Rs...									595
2. Workshops and stores :—									
Stores ...	1,000	...	...	...	..	...	...	...	1,000
Workshops fitted ...	20,000	...	...	...	...		...	...	20,000
									21,000
Add,—for contingencies,—5 per cent.									1,050
Total cost Rs ...									22,050
Rate per mile Rs...									581
3. Staff Quarters :—									
Station Masters' ..	750	...	...	500	750	500	500	750	3,750
Asst. Station Masters'...	250	...	...	...	...	...	...	250	500
Drivers' ...	1,500	...	...	...	...	...	....	..	1,500
Firemen's ...	1,500	...	...	...	...	.	...	...	1,500
Menials'	900	...	150	300	450	300	150	750	3,000
P. W. Inspectors'	1,000	...	...	...	750	...	....	...	1,750
Gangmen's (on line) ...	...	...	...	...	...	...	..	...	2,000
Total...	5,900		150	800	1,950	800	650	1,750	14,000
Add,—for contingencies,—5 per cent.									700
Total cost Rs...									14,700
Rate per mile Rs...									387

Bangalore Chickballapur Light Railway.

(Gauge 2'-6".) *(Length 37·95 miles.)*

VIII. STATIONS AND BUILDINGS.

4. Station Machinery.

DESCRIPTION.	Bangalore (Aralepete.)	BangaloreCity.	Yelahanka.	Jala.	Devanhalli.	Avati.	Nandi Road.	Chickballapur.	Total.	Rate. Rs.	Unit.	Cost Rs.
Corr. Iron Engine shed.	1	...	...	...	...	...	...	...	1	2,000	each	2,000
Water tanks on old rail staging ...	1	...	...	1	1	...	...	1	4	500	„	2,000
Well 8 feet dia : ...	1	...	...	1	1	...	...	1	4	1,000	„	4,000
3" G. C. piping ...	250	...	...	250	250	...	...	250	1,000	1-8	R. ft.	1,500
3" Valves ...	1	...	...	1	1	...	...	1	4	35	each	140
Hydrants ...	1	...	...	...	...	...	...	...	1	80	„	80
Lift and force pumps ...	1	...	...	1	1	...	...	1	4	500	„	2,000
Ashpits ...	1	...	...	...	...	...	...	...	1	600	„	600
Crossings ...	10	...	1	2	4	3	2	9	31	100	„	3,100
Points 15 feet ...	10	...	1	2	4	3	2	9	31	125	„	3,875
Weighing machines ...	2	...	1	1	1	1	1	2	9	300	„	2,700
Buffer-stops ...	6	...	1	...	2	1	...	3	13	20	„	260
Hose-pipes ...	1	...	...	1	1	...	...	1	4	5	„	20
Carriage examining pit 100 feet ...	1	...	...	...	...	...	...	...	1	6	R. ft.	600
Disc signals ...	3	...	1	...	2	..	...	3	9	20	each	180
Semaphore signals ...	...	1	1	1	1	1	1	1	7	150	„	1,050
Signal cabin equipped with interlocking ...	1	...	...	...	...	...	...	...	1	5,000	„	5,000
												29,105
Add,— for contingencies, — 5 per cent.												1,455
											Total cost Rs....	30,560
											Rate per mile Rs...	805

Bangalore Chickballapur Light Railway.

(Gauge 2'-6".) *(Length 37·95 miles.)*

IX. PLANT.

DESCRIPTION.	Quantity.	Rate Rs.	Unit.	Cost. Rs.
1. Engineering :—				
Tents ... Lump sum ...	...	...	...	1,500
Trollies-Light riding	4.	150	each	600
Material	6	200	„	1,200
Platelayers' tools ... Lump sum ...	...	...	...	1,250
Rivetters', carpenters' and smiths' tools and forges ... Lump sum ...	...	...	...	1,500
Transit Theodolites-5" ...	2	500	each	1,000
Levels-14" Dumpy	2	250	„	500
Staves-14'	4	35	„	140
Ranging Rods	24	1	„	24
Prismatic Compasses	2	45	„	90
Drawing Instruments ... Lump sum ...	...	...	...	500
Office Furniture for construction staff Lump sum	...	...	...	1,000
				9,304
Add,—for contingencies,—5 per cent.				465
			Total cost Rs...	9,769
			Rate per mile Rs...	257
2. Locomotive :—				
Tools and plant for equipment of one running shed, for Loco Departments Lump sum	...	...	...	5,000
Add,—for contingencies,—5 per cent.				250
			Total cost Rs...	5,250
			Rate per mile Rs...	138

Bangalore Chickballapur Light Railway.

(Gauge 2'-6".) *(Length 37·95 miles.)*

IX. PLANT.

DESCRIPTION.	Quantity.	Rate Rs.	Unit.	Cost Rs.
3. Carriage and Wagon :— Tools and plant necessary for carriage and wagon repair-shops.. Lump sum	...	...	...	5,000
				5,000
Add,—for contingencies,—5 per cent.				250
			Total cost Rs...	5,250
			Rate per mile Rs...	138

4. STATION AND OFFICE FURNITURE.

DESCRIPTION.	Bangalore (Aralepete.)	BangaloreCity	Yelahanka.	Jala.	Devanhalli.	Avati.	Nandi Road.	Chickballapur	Total No.	Rate.	Unit.	Total cost Rs.
Almirahs	1	...	...	1	1	1	1	1	6	30	each	180
Office chairs ...	5	1	...	2	4	2	2	5	21	4	„	84
„ tables ...	4	1	1	1	2	1	1	3	14	15	„	210
Belts&Badges for peons	3	...	1	1	2	1	1	3	12	2	„	24
Cash bags ...	4	...	2	2	2	2	2	4	18	3	„	54
Notice boards ...	4	2	1	1	3	2	1	3	17	3	„	51
Station name boards ...	1	1	1	1	2	1	1	1	9	30	„	270
Book-racks ...	2	...	...	1	1	1	1	1	7	10	„	70
Fire buckets ...	6	...	...	6	6	6	6	6	36	2	„	72
Rail bells ...	1	1	1	1	1	1	1	1	8	2	„	16
Clocks ...	2	1	1	1	2	1	1	2	11	16	„	176
Platform lamps ...	4	4	4	...	...	...	...	...	12	15	„	180
Hand signal „ ...	2	...	...	1	1	1	1	2	8	4	„	32
Office „ ...	2	...	...	1	2	1	1	2	9	6	„	54
Safes-Cash-iron ...	1	..	1	1	1	1	1	1	7	60	„	420
Ticket dating presses ...	1	1	...	1	1	1	1	1	7	80	„	560
Oil drums with locks	2	...	1	1	1	1	1	1	8	5	„	40
												2,493
Add,—for contingencies,—5 per cent.												125
											Total cost Rs...	2,618
											Rate per mile Rs...	69

Bangalore Chickballapur Light Railway.

(Gauge 2'-6".) *(Length 37·95 miles.)*

XI. ROLLING STOCK.

DESCRIPTION.	Quantity.	Rate Rs.	Unit.	Cost Rs.
I. Locomotive :—				
Locomotives, 8 wheel coupled, with leading and trailing four-wheeled bogies (B. L. R. Type) built to uniform 3 ton axle-load, erected on rail at Bangalore ...	2	27,750	each	55,500
Add,— for contingencies,— 5 per cent.				2,775
			Total cost Rs...	58,275
			Rate per mile Rs...	1,538
II. Carriage and wagon :—				
Composite, brake-van, mail-van, and 3rd class coaches ...	2	8,625	each	17,250
Composite 1st, 2nd & 3rd Class coaches.	2	8,250	„	16,500
3rd class coaches ...	4	7,125	„	28,500
Covered goods' wagons,-iron ...	12	2,550	„	30,600
Highsided „ „ „ ...	4	2,475	„	9,900
Lowsided „ „ „ ...	8	2,250	„	18,000
(*N. B.*— All carriage and wagon stock to be built to a uniform 3 ton axle-load and carried on double bogies: prices include erection on rail at Bangalore.)				
				1,20,750
Add,— for contingencies,— 5 per cent.				6,038
			Total cost Rs...	1,26,788
			Rate per mile Rs...	3,341

Bangalore Chickballapur Light Railway.

(Gauge 2'-6".) *(Length 37·95 miles.)*

XII. GENERAL CHARGES.

DESCRIPTION.	Number.	Salaries, Etc.			Period months.	Amount.
		Salary.	Travelling allowance.	Monthly Total.		
		Rs.	Rs.	Rs.		Rs.
1. Direction :—	...	...	...	...	...	...
2. Engineering :—						
Executive Engineer ...	1	750	150	900	18	16,200
Sub Engineers	2	150	30	360	18	6,480
Sub Overseers	6	20	10	180	18	3,240
Divisional Clerks ...	5	25	...	125	18	2,250
Sub Divisional Clerks ...	2	20	...	40	18	720
Peons ...	6	7	...	42	18	756
Draughtsman ...	1	50	...	50	18	900
Tracers ...	2	15	...	30	18	540
Khalassies ...	12	8	...	96	18	1,728
Stationery Lump sum...	...	...	...	...	...	1,000
						33,814
Add, for contingencies,—5 per cent.						1,191
					Total cost Rs...	35,005
					Rate per mile Rs...	922
3. Stores :—						
Store-keeper ...	1	50	...	50	18	900
Assistant Store-keeper ...	1	15	...	15	18	270
Chowkidars ...	6	6	....	36	18	648
Peons ...	2	7	...	14	18	252
Stationery Lump sum...	...	...	...	...	...	200
						2,270
Add,—for contingencies,—5 per cent.						114
					Total cost Rs...	2,384
					Rate per mile Rs...	63
4. Audit and accounts :—						
Accountant ..	1	70	...	70	18	1,260
Deputy Accountant ...	1	50	...	50	18	900
Clerks ...	3	25	...	75	18	1,350
Peons ...	3	7	...	21	18	378
Stationery Lump sum...	...	...	...	...	...	200
						4,088
Add,—for contingencies,—5 per cent.						204
					Total cost Rs...	4,292
					Rate per mile Rs...	113

Bangalore Chickballapur Light Railway.

(Gauge 2'-6".) *(Length 37·95 miles.)*

XII. GENERAL CHARGES.

DESCRIPTION.	Number.	Salaries, Etc.			Period months	Amount.
		Salary.	Travelling allowance.	Monthly Total.		
		Rs.	Rs.	Rs.		Rs.
5. Medical & Sanitation :—	...	...	...	*Nil.*	...	...
6. Locomotive :—						
Driver ...	1	50	...	50	6	300
Fireman ...	1	20	...	20	6	120
Cleaners ...	2	10	...	20	6	120
Coolies ...	4	6	...	24	6	144
						684
Add,—for contingencies,—5 per cent.						34
					Total cost Rs...	718
					Rate per mile Rs...	19
7. Traffic : —						
Guard ...	1	20	...	20	4	80
Brakesman ...	1	10	...	10	4	40
						120
Add,—for contingencies,—5 per cent.						6
					Total cost Rs...	126
					Rate per mile Rs...	3

Appendix.

To

The Directors,

Bangalore Chickballapur Light Railway,

Mundy Buildings, Chamarajpet,

BANGALORE.

GENTLEMEN,

I beg to inform you that I have made a new survey of the proposed line from here to Chickballapur, and an entirely new estimate of the probable cost of construction, meeting all objections raised by the Railway-Board in their Note of 30th Sept. 1907. A grade of 1 in 100 has been obtained at the expense of a little Earthwork, about 8 per cent in excess of the quantities provided for in the old estimates; the length of the line has been reduced by a little over one mile, and that of the sidings by a mile and half.

In estimating rates, I have consulted several authorities here, and have provided, in all cases, rates at which good work can be done, and, I think, fair to all parties—these rates very closely approximate those paid for similar works in this Province by the S. M. Ry. Coy.

The rates provided for Earthwork in Banks and Cuttings have been taken at Rs. 6 and Rs. 9 respectively per 1000 c. ft., as 'through' rates, and these should suffice as I do not anticipate that there will be any rock-cutting, the line having been carefully laid out to avoid all outcrops of rock. Banks have been estimated as being 12 feet wide at formation, with slopes of 1 to 1, while cuttings have been estimated as being 13 feet wide at formation, with slopes of ½ to 1. In construction, I would recommend that cuttings be taken out originally to a width of 13 feet to their full depth, and where the soil is soft, loamy, or sandy, such portion may be sloped off at ½ to 1, the rest being left to stand vertical.

Wherever possible, valuable lands have been avoided, those pieces which the line does traverse being only small plots; the provision of Rs. 300 per mile made in the estimates should amply cover the cost.

In the estimate for bridges, those most suitable for and most economical for each site have been adopted, and the amount of waterway provided in the present estimate is only about three-fourths of that provided in the former. The rates for bridge-work are practically identical with those paid by the S. M. Ry. Coy., for similar work.

Fencing has only been provided where absolutely necessary, such as, at Stations and important Road-crossings.

In deciding section of rail, axle-load, type of Loco, Carriage and Wagon stock, I referred to your Consulting Engineers, Messrs. E.R. Calthrop & Partners, and by their advice have adopted a three ton axle-load, and a 25 lb. flat-footed steel rail, for which they very kindly quoted, as near as they could, rates at which you may expect to get both Permanent-way material and Rolling-stock, subject, of course, to market fluctuations.

Government Regulations require that the minimum weight of rail per yard shall be not less than 5 lbs. per each ton of load on any axle, that is, not less than 15 lbs. for the 3 ton axle-load adopted for the present project; but your Consulting Engineers having strongly recommended the adoption of a heavier section of rail, in which I fully concur, I have followed their advice, so that in the event of your axle-load being increased, as will inevitably happen when traffic develops, there will be no need to relay your road with a heavier rail, a very costly item.

The amount of rolling-stock provided for in the estimates is necessarily small, to reduce prime cost of construction as much as possible, but it will, I think, be sufficient to work the traffic for some three years, if stock be not kept under load unnecessarily in the season when traffic is heaviest.

Wooden sleepers have been adopted in lieu of the steel sleepers advised by your Consulting Engineers, as, even taking Rs. 2. (an outside figure), as the cost of a sleeper, it will effect a saving of Rs. 750 a mile or Rs. 30,000 on the entire line, though I must admit that steel sleepers are infinitely more durable, and make a better road. As the wooden sleepers are comparatively small in section, and can be procured in large numbers within the provence of Mysore, I am of opinion that they could be delivered in Bangalore, at a considerably smaller figure than that allowed in the estimates.

In the estimates, I have provided for all necessary Station buildings, Offices, Goods' sheds, Platforms, etc., also for all quarters necessary for the working staff, the amounts provided being ample in all cases to house employés adequately.

Provision has been made, too, for all necessary station machinery, a triangle or turn-table being considered unnecessary for engines which will run in both directions.

A lump sum of Rs. 20,000 has been provided for the erection of a workshop at Bangalore, and its proper equipment with the plant necessary to carry out ordinary running repairs and small works incidental to maintenance of line. Such small length of line with new rolling-stock not warranting any heavy outlay in this direction at present, any heavy repairs which have to be done should be put in the hands of the S. M. Ry. Coy., whose workshops are close to your terminus.

Provision has also been made for tools, instruments etc., necessary for the equipment of the line, and for all furniture that may be required.

Under the heading "Rolling-Stock," provision has only been made for the minimum quantity of stock with which the line can be worked for the first two or three years, without allowing goods to accumulate for want of wagon-stock. Two complete passenger trains and two locomotives only have been provided for, as the engine can make an outward trip and return the same day, so that one Locomotive and a complete train will always be available to meet any sudden emergency. The type of Loco, Carriage and Wagon stock is that recommended by your Consulting Engineers,—that is, Locomotives-8 wheel coupled with a leading and trailing four-wheeled bogie, and carriage and wagon stock of pressed steel under-frames carried on a four-wheeled bogie at each end, identical in pattern with those recently supplied to the Barsi Light Ry., except that they will be designed to carry a three-ton axle-load only, be shorter in length, and be much less elaborate in superstructure.

Under heading "General Charges," a provision has been made of Rs. 42,525 as against Rs. 22,892 in the previous estimate, an increase of nearly 100 per cent, but which cannot be avoided.

Furthermore, a sum of Rs. 1,50,000 has been provided to meet interest on Capital during consruction, and to cover such items of expenditure as Promotion-money, Consulting Engineer's fees, etc.. etc., bringing up the Grand Total of the estimates to Rs. 13,73,278 or Rs. 1,60,082 more than the original estimates.

While in the field, I had many enquiries from merchants and others regarding the probability of the commencement of construction at an early date, all parties showing a keen interest in the project ; and, from what I have seen of the country, I am of opinion that there should be no difficulty in working the line at a well defined profit from its opening ; nor can there be any doubt that the traffic will develop very considerably in the course of the next 5 years, necessitating purchase of additional Rolling-Stock.

In estimating the probable earnings of the line I have consulted, besides your own records, the report on trade statistics made by Mr. K. R. Sreenivasa Iyengar, M. A., deputed by the Mysore Government in 1906, and also the report of Mr. C. Ramaswamiah, Traffic Inspector, S. M. Ry. This last report was prepared by the order of the Agent of the S. M. Ry., only last year, and may be taken as more realiable and accurate.

As to the question whether the line should be constructed as a "Light-Railway" or as a "Steam-Tramway,"—The differentiation of the two is difficult to express in words, but I do not think any better definition of the difference can be given than that in para 3 of Government of India P. W. D. Circular No. XV, Railways, of 11th October 1893, which reads.—"Although it appears impracticable to define in set terms, the difference between "Steam-Tramways" and "Light-Railways," it is noteworthy that in none of the acts relating to Tramways is any provision made in regard to stations, signals, fencing, gates and crossings. Generally speaking, projects which

require these equipments, as well as projects which contemplate the running of trains at a speed exceeding 12 miles an hour, should, "prima facie," be held to come under the classification of Railways." Para 4 of the same circular says that Tramways may be compelled, if necessary, to give way to a Railway that may be projected in the district through which the Tramway runs, in which case the Tramway is taken over compulsorily by the Railway, even though it be paying a good dividend.

Considering the very small difference in point of cost between a tramway and a railway, and remembering also that in each case the same formalities will have to be gone through, I am decidedly of opinion that it is imperative on you to undertake the scheme as a Light Railway from its very inception. All things considered, a steam-tramway is most unsuited to the work required; moreover, a steam-tramway would work as a dead-weight in all your future extensions, both towards Chintamani and towards Palcode, and these extensions, I am confident, will become absolute necessities in the next few years. On the one hand the advantages are few, and the disadvantages many on the other, and I have no hesitation in condemning the idea of a steam-tramway for the line now under consideration.

A question was raised as to the advisability of making Yelahanka the present southern terminus of the line, but this is found impracticable for these reasons:—

1. In the first place, as already stated in my report on the project, the gauge has been decided to be 2'-6", more on account of the difference in cost between it and metre gauge, than for the other reasons mentioned in that report, though they are not to be taken to be less strong on that account.

2. The gauge having been fixed at 2'-6", and not metre, any advantages that might be put down to the credit of that suggestion disappear at once, and do not compensate in the least for the disadvantage to break bulk once again in the case of through goods traffic between Chickballapur, and stations east of Bangalore, which is only ten miles from Yelahanka.

3. Moreover, assuming that Yelahanka were made the starting point, the section from Yelahanka to Bangalore, would perforce have to be built on the same gauge as the Palcode-Krishnagiri line, which is 2'-6", and which is likely to be built and brought into Bangalore very soon.

In conclusion, I beg to state that I have very carefully prepared the project, taking into consideration, not only the present but also the future possibilities of the line, and I fully trust that the Railway Board will not have any serious objections this time to accord their sanction to the project, and I hope to hear from you that such sanction has been obtained, and construction put in hand.

I have the honour to be,
Gentlemen,
Your most obedient servant,
LESLIE. PAYNE,
Engineer in charge of Survey.

Bangalore,
30th October 1908.